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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,810	05/04/2001	Rodolfo A. Santiago	1305.10US01	8921

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EXAMINER
HO, DUC CHI

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Office Action Summary	**Application No.**	**Applicant(s)**
		09/849,810	SANTIAGO ET AL.
		Examiner	**Art Unit**	
		Duc C Ho	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>04 May 2001</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-60</u> is/are pending in the application.

    4a) Of the above claim(s) <u>49-55,59 and 60</u> is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-3, 9-10, 13-18, 22-27, 33-46, 48, 56-58</u> is/are rejected.

7) ☒ Claim(s) <u>4-8,11,12,19-21,28-32 and 47</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some *   c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>03-21-02</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Election/Restrictions

1.   Restriction to one of the following inventions is required under 35 U.S.C. 121:

    I.   Claims 1-48, and 56-58, drawn to flow control of data transmission

        through a network, classified in class 370, subclass 235.

    II.   Claims 49-55, and 59-60, drawn to queuing arrangement, classified in

        class 370, subclass 412.

2.   The inventions are distinct, each from the other because of the following reasons:

        Inventions I and II are related as subcombinations disclosed as usable together

in a single combination. The subcombinations are distinct from each other if they are

shown to be separately usable. In the instant case, each of the invention of the group I,

and II can be used in a system and method for hierarchical policing of flows and

subflows of a data stream that does not necessarily utilize the features of the inventions

of the other group. See MPEP § 806.05(d).

3.   Because these inventions are distinct for the reasons given above and have

acquired a separate status in the art as shown by their different classification, restriction

for examination purpose as indicated is proper.

4.   During a telephone conversation with Brad Pederson (P:612-349-5774)on

January -07- 2005, a provisional election was made with traverse to prosecute the

invention of the group I, claims 1-48, and 56-58.

5.   Affirmation of this election must be made by applicant in replying to this Office

action. Claims 49-55, and 59-60 are withdrawn from further consideration by the

examiner, 37 FR 1.142(b), as being drawn to a non-elected invention.

DETAILED ACTION

Specification

6.   The disclosure is objected to because of the following informalities: (1) Please

delete the Attorney Docket No. in the Cross-Reference section, and in pages 21-23; (2)

Please insert the corresponding serial number into the cited U.S. Patent application in

page 21-line 8, page 22-line 20, and page 23-line 2.

Appropriate correction is required.

Claim Objections

7.   Claims 1-32 are objected to because of the following informalities:

Regarding claim 1, lines 8-9, the step "marking the packets ...based on the

measured rate of the respective first level subflow" should be changed to "marking the

packets ...based on the measured rate of the respective first level subflow**s**", since the

step of measuring the rate is performed on each of the first level subflows.

Regarding claim 24, the term "F-GCRA" should be written in full word at the first

time mentioned.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b) that form

the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public
> use or on sale in this country, more than one year prior to the date of application for patent in the United
> States.

9.   Claims 1-3, 9-10, 15-18, 22-27, 33-37, 44-46, 48, and 56-58 are rejected under

35 U.S.C. 102(b) as being anticipated by Heinanen et al. ("A Two Rate Three Color

Marker", University of Pennsylvania, September 1999, pp.1-5- in record), hereinafter

referred as Heinanen.

Regarding claim 1, Heinanen discloses a two rate three color marker (trTCM),

which can be used as a component for ingress policing of a service, wherein a peak

rate needs to be enforced separately from a committed rate.

classifying the data stream into at least one traffic flow (all packet processing

involves four basic tasks, of which one of the tasks is parse in order to analyzes and

classifies the contents of the packet header and the field. In other words, an IP packet

stream of Heinanen is inherently classified into at least a Peak Information Rate (PIR),

see abstract);

classifying at least one of the traffic flows into a plurality of first level

subflows (green) (the PIR flow is inherently classified into a plurality of associated burst

sizes or subflows to be either green, yellow or red, see abstract)

measuring a rate of each of the first level subflows associated with the

traffic flow when the traffic flow reaches a predetermined bandwidth threshold (the

trTCM meters the PIR rate, and a packet is marked red if it exceeds the PIR rate.

Otherwise it is marked either yellow or green depending on whether it exceeds or

doesn't exceed the Commited Information Rate (CIR) rate, see "1.Introduction", page 1)*;*

and

        marking the packets associated with each of the first level subflows

with one of a plurality of conformance indicators based on the measured rate of the

respective first level subflow (the conformance indicators are red, green or yellow).

        Regarding claims 2-3, the packets are assigned or marked red if their rate

exceeds the PIR rate limit, and marked yellow or green if the packets being compared

to whether they exceed or don't exceed the Commited Information Rate (CIR) rate.

        Regarding claim 9, the trTCM meter is inherently configured to monitor each of

the traffic flows to determined whether each packet has reached its PIR or CIR rate.

        Regarding claim 10, Heinanen discloses a method for a triggering token level in a

credit-token metering methodology, see "3.metering", pages 2-3.

        Regarding claim 15, in Heinanen a packet stream is classified into two different

flow rates, wherein the packet stream is an Internet Protocol packet stream.

        Regarding claim 16, the IP packet is classified as a layer 3 packet.

        Regarding claim 17, the IP packet is classified for routing to destination based on

its source and destination address.

        Regarding claim 18, the associated burst sizes of the traffic flow rates PIR and

CIR inherently classified based on the IP layer information.

Regarding claim 22, Heinanen discloses a method for a triggering token level in a credit-token metering methodology, see "3.metering", pages 2-3.

Regarding claim 23, Heinanen discloses metering each of the associated burst sizes using a color-based methodology.

Regarding claim 24, F-GCRA is the policing method provided in the ATM Forum's specification of FAST, and the Internet Engineering Task Force (IETF)'s IP packet policing generally involves the use of either Single Rate Three Color Marker (srTCM) or Two Rate Three Color Marker (trTCM) techniques.   In other words, Heinanen's method in metering the flow is capable of employing an F-GCRA methodology.

Regarding claim 25, Heinanen disclosing that a service may discard all red packets (non-conforming), because they exceeded the peak rate, see "5.Service Example", page 3.

Regarding claim 26, Heinanen disclosing that a service may forward green packets (conforming) with low drop probability, see "5.Service Example", page 3.

Regarding claim 27, the claim has similar limitations as claim 25. Therefore, it is rejected under Heinanen for the same reasons set forth in the rejection of claim 25.

Regarding claim 33, Heinanen discloses a two rate three color marker (trTCM), which can be used as a component for ingress policing of a service, wherein a peak rate needs to be enforced separately from a committed rate. The trTCM can be used to mark an IP packet stream in a service, from which a packet may be discarded or forwarded with low drop probability.

parsing the data stream into a plurality of flows (all packet processing involves four basic tasks, of which one of the tasks is parse in order to analyzes and classifies the contents of the packet header and the field. In other words, an IP packet stream of Heinanen is inherently classified into the flows of Peak Information Rate (PIR), and Committed Information Rate (CIR),see abstract);

for any of the flows, identifying at least one characteristic common to a first subset of the flow (the PIR or the CIR flow is inherently classified into a plurality of associated burst sizes to be either green, yellow or red, see abstract);

associating a first drop probability with each of the packets of the first subset having the common characteristic (in Heinanen a service may discard all red packets, because they exceeded the peak rate)*, and associating a second drop probability to at least one other subset of the flow, thereby providing different drop probabilities for different subsets of the flow* (on the other hand, a service forward green packets with a low drop probability, see "5.Service Example, page 3).

Regarding claim 34, the red packets indicate a probability to be discarded, see "5.Service Example, page 3.

Regarding claim 35, the green packets indicate that they will have a low drop probability, see "5.Service Example, page 3.

Regarding claim 36, the red packet indicates a probability of greater likelihood of being dropped prior to the green or yellow packet.

Regarding claim 37, the IP packet stream is grouped into two flow rates PIR, and CIR.

Regarding claim 44, the red packets is equivalent to the claimed limitation at

least one characteristic common to a second subset of the flow; and wherein the green

packets is equivalent to the claimed limitation a second drop probability.

Regarding claims 45-46, Heinanen discloses the "3.Metering, pages 2-3", in

which the red and the green packets configured to be discarded under different

condition or the same condition.

Regarding claim 48, the yellow packets comprising all packets that are not

marked red or green.

Regarding claims 56, and 58, these claims have similar limitations as claim 1.

Therefore, they are rejected under Heinanen for the same reasons set forth in the

rejection of claim 1.

Regarding claim 57, the claim has similar limitations as claim 33. Therefore, it is

rejected under Heinanen for the same reasons set forth in the rejection of claim 33.

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set

forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negatived by the manner in which the invention was made.

11.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior

art under 35 U.S.C. 103(a).

12.   Claims 13, 14, 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Heinanen, in view of Carter et al.(US 6,538,989), hereinafter referred to as Carter.

        Regarding claim 13, Heinanen discloses all claimed limitations, except adding a

flow ID to the classified flow to a local header, and identifying a traffic flow to meter

based on the flow ID.

        Carter discloses a packet network. In Carter means are provided for writing a

peak rate flow bandwidth requirement information into a peak rate flow rate bandwidth

requirement portion of packets. Carter also discloses that IP version 6 has the notion of

a single field called the flow-id, see col. 14, lines 46-62.

        One skill in the art would recognize the advantage of using flow ID embedded in

the header as suggested in the IP version 6 for identifying the traffic flow to meter

based on the flow ID.

        At the time of the invention, it would have been obvious to a person of ordinary

skill in the art to combine Heinanen with Carter.

        The suggestion/motivation for doing so would have been to identify the traffic

flow to meter based on the flow ID.

Therefore, it would have been obvious to combine Heinanen with Carter to obtain the invention as specified in claim 13.

Regarding claim 14, the claim has similar limitations as claim 13. Therefore, it is rejected under Heinanen-Carter for the same reasons set forth in the rejection of claim 13.

Regarding claim 19, Heinanen discloses all claimed limitations, except classifying the traffic flow based on layer-4 information.

Carter discloses a packet network. In Carter mechanism for classifying the flow includes the traffic type such as port number/transport protocol (layer 4), see col. 14, lines 46-62.

One skill in the art would recognize the advantage of classifying the flow based on layer-4 information in order to support the provision of different service classes that the Integrated Service (IS) Internet requires flow state information in all the network routers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Heinanen with Carter.

The suggestion/motivation for doing so would have been to support the provision of different service classes that the Integrated Service (IS) Internet requires flow state information in all the network routers.

Therefore, it would have been obvious to combine Heinanen with Carter to obtain the invention as specified in claim 19.

Regarding claim 20, please see the rejection of claim 19. Carter discloses classifying the traffic flow by port number.

Regarding claim 21, the claim has similar limitations as claim 13. Therefore, it is rejected under Heinanen-Carter for the same reasons set forth in the rejection of claim 13.

Regarding claim 38, the claim has similar limitations as claim 13. Therefore, it is rejected under Heinanen-Carter for the same reasons set forth in the rejection of claim 13.

Regarding claim 39, in Heinanen the IP packet is classified as a layer 3 packet.

Regarding claim 40, in Heinanen the IP packet is classified for routing to destination based on its source and destination address.

Regarding claim 41, Heinanen discloses all claimed limitations, except identifying common information (such as the common layer-3 packet) in one or more header fields embedded in the packets to distinguish the first subset from the other subsets of the flow.

Carter discloses a packet network. In Carter mechanism for classifying the flow includes the traffic type such as protocol (layer 3), see col. 14, lines 46-62.

One skill in the art would recognize the advantage of classifying the flow based on layer-3 information in order to support the provision of different service classes that the Integrated Service (IS) Internet requires flow state information in all the network routers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Heinanen with Carter.

The suggestion/motivation for doing so would have been to support the provision of different service classes that the Integrated Service (IS) Internet requires flow state information in all the network routers.

Therefore, it would have been obvious to combine Heinanen with Carter to obtain the invention as specified in claim 41.

Regarding claim 42, please see the rejection of claim 41. Carter discloses the transport protocol layer 4, which can be embedded in one or more header fields of the packet to distinguish one flow from the other, see col. 14, lines 46-62.

Regarding claim 43, please see the rejection of claim 41. Carter discloses a port number, which can be embedded in one or more header fields of the packet to distinguish one flow from the other, see col. 14, lines 46-62.

Allowable Subject Matter

13.   Claim 47 is objected to as being independent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14.   Claims 4-8, 11-12, 19-21, and 28-32 are objected to as being independent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and further to overcome the objection set forth above.

Conclusion

15.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chen et al. (US2002/0116527); Masuda et al. (US 2001/007560); Soumiya et al. (US 6,760,744); Maher,III et al.(US 2003/0118029) ; Gai et al.(US 6,651,101); Hakenberg et al.(US 6,792,470); Ahmadvand (US 6,477,670); Aukia et al.(US 6,594,268); Kejriwal et al.(US 6,757,249); Hoar et al.(US 2002/0097677) are cited to show system and method for hierarchical policing of the flows and subflows of a data stream, which is considered pertinent to the claimed invention.

16.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (571) 272-3147. The examiner can normally be reached on Monday through Friday from 7:00 am to 3:30 pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

17.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

Duc Ho

1-19-05